

ABSTRACT OF THE DISCLOSURE

A tyre for a vehicle wheel includes a carcass structure, a belt structure, a tread band, and a pair of sidewalls. The carcass structure includes at least one carcass ply shaped in a substantially toroidal configuration. Opposite lateral edges of the carcass structure are associated with respective bead wires. Each bead wire is enclosed in a respective bead. The belt structure includes at least one belt strip. The tread band includes a radially outer layer designed to contact the ground and a radially inner layer between the belt structure and the radially outer layer. The radially inner layer includes a crosslinked elastomeric composition. The crosslinked elastomeric composition includes at least one diene elastomeric polymer and at least one layered inorganic material comprising an individual layer thickness greater than or equal to 0.01 nm and less than or equal to 30 nm. A process for producing the tyre is also disclosed.